

CLAIMS:

1-57 (canceled)

58. (currently amended) ~~An~~ User receiving apparatus provided at a user end for receiving a repeatedly broadcast multiplexed data signal broadcast from a transmission end remote to the user receiving apparatus, the user receiving apparatus comprising:

a receiving unit operable to accept the repeatedly broadcast multiplexed data signal from a communications channel broadcast from the transmission end remote to the user receiving apparatus;

a demultiplexer operable to extract a desired data signal from the repeatedly broadcast multiplexed data signal;

an instruction unit operable to send download mode instructions to a ~~user-selectable-designated~~ storage unit selected by the user from two or more storage units located at the user end and connected to the user receiving apparatus, the download mode instructions at least indicating that the user-selected storage unit should enter a ready-to-download mode for downloading the desired data signal from the repeatedly broadcast multiplexed data signal;

a status determination unit operable to receive download status information from the user-selected storage unit indicating at least whether the user-selected storage unit has entered the ready-to-download mode; and

a controller operable to permit the downloading of the desired data signal from the demultiplexer to the user-selected storage unit as a function of the download status information.

59. (previously presented) The apparatus of claim 58, wherein at least one of the receiving unit, the demultiplexer, the instruction unit, the status determination unit, and the controller are separately implemented.

60. (previously presented) The apparatus of claim 58, wherein at least two of the receiving unit, the demultiplexer, the instruction unit, the status determination unit, and the controller are integrally implemented.

61. (currently amended) The apparatus of claim 58, wherein the storage device controls start and stop conditions for downloading independently of the controller.

62. (previously presented) The apparatus of claim 58, wherein the instruction unit is operable to provide a wait instruction to the storage unit which indicates that the storage unit should wait until a scheduled time is reached to download the desired data signal.

63. (previously presented) The apparatus of claim 58, wherein the instruction unit is operable to provide a setup instruction to the storage unit which indicates that the storage unit should transmit download status changes to the status determination unit during the downloading of the desired data signal.

64. (previously presented) The apparatus of claim 63, wherein the controller permits release of the desired data signal to the storage unit such that the storage unit independently controls a download start and a download stop by monitoring data start and data stop indicators within the desired data signal.

65. (previously presented) The apparatus of claim 64, wherein the desired data signal is in an ATRAC compressed format.

66. (previously presented) The apparatus of claim 58, wherein:

the status determination unit is operable to request the downloading status information from the storage unit; and

the control unit is operable to (i) compute downloading completion information from the downloading status information, and (ii) output the downloading completion information to a display unit.

67. (previously presented) The apparatus of claim 66, wherein the status determination unit is operable to request the downloading status information on a periodic basis.

68. (previously presented) The apparatus of claim 66, wherein the downloading status information includes time data and the controller is operable to compare the time data with a total time value contained within the desired data signal to obtain the downloading completion information.

69. (previously presented) The apparatus of claim 68, wherein the downloading completion information represents at least one of: (i) a numerical percentage of downloading completion; and (ii) elapsed time in downloading.

70. (previously presented) The apparatus of claim 58, wherein:

the status determination unit is operable to receive an error signal from the storage unit indicating that at least one of a packet continuity error, a transport error, a checksum error, and an operational error has occurred; and

the controller is operable to output an error message to a display unit in response to the error signal.

71. (previously presented) The apparatus of claim 70, wherein the controller is operable to instruct the storage unit to retry the downloading of the desired data signal at a next scheduled time at which the desired data signal is available to download.

72. (previously presented) The apparatus of claim 70 wherein:

the controller is operable to (i) determine whether a download retry is possible in response to the error signal; and (ii) output a message to a display unit indicating that downloading cannot be accomplished when a download retry is not possible; and

the instruction unit is operable to output a download mode instruction to the storage unit to terminate downloading when the controller determines that a download retry is not possible.

73. (previously presented) The apparatus of claim 58, wherein the instruction unit is operable to request that the storage unit record management data concerning the downloaded desired data signal when downloading is complete.

74. (previously presented) The apparatus of claim 73, wherein the management data includes at least one of U-TOC data, AUX-TOC data, and AUX data obtained from the desired data signal.

75. (previously presented) The apparatus of claim 58, wherein the instruction unit is operable to request, and the status determination unit is operable to receive, download readiness information from the storage unit, the download readiness information including at least one of (i) whether the storage unit is powered on; (ii) whether a storage medium is loaded in the storage unit; (iii) whether the storage medium is write protected; and (iv) whether the storage medium has requisite storage capacity to store the desired data signal.

76. (previously presented) The apparatus of claim 58, wherein the controller is operable to facilitate downloading of the desired data signal from the demultiplexer to one or more storage units.

77. (previously presented) The apparatus of claim 76, wherein the controller is operable to register a new storage unit that is connected to the apparatus.

78. (previously presented) The apparatus of claim 77, wherein:

the instruction unit is operable to request identification information from the new storage unit; and

the controller is operable to store the identification information received from the new storage unit.

79. (previously presented) The apparatus of claim 78, wherein the instruction unit is further operable to request, and the controller is operable to: (i) receive storage unit information from the storage unit, including storage unit type, detailed type, and ATRAC compression capability; and (ii) store the requested information.

80. (previously presented) The apparatus of claim 79, wherein the storage unit type information includes at least one of an analog VCR type, a digital VCR type, a DV type, a D-VHS type, an MD recorder type, a CD recorder type, a DVD recorder type, and a hard disc drive type.

81. (previously presented) The apparatus of claim 79, wherein the detailed type information includes at least one of an analog VCR indication, an MD recorder indication, and a DVD recorder indication.

82. (previously presented) The apparatus of claim 77, wherein the controller is operable to perform at least one function selected from (i) assigning the new storage unit a name by default; and (ii) assigning the new storage unit the name in accordance with a user instruction.

83. (previously presented) The apparatus of claim 82, wherein the controller is operable to prompt a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded by selecting the name of the storage unit.

84. (previously presented) The apparatus of claim 76, wherein the controller is operable to prompt a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded.

85. (previously presented) The apparatus of claim 76, wherein the controller is operable to register that a storage unit has been disconnected from the apparatus.

86. (currently amended) A method for downloading a desired data signal from a repeatedly broadcast multiplexed data signal broadcast from a remote transmission end to a user end, comprising:

receiving at the user end the repeatedly broadcast multiplexed data signal from a communications channel broadcast from the transmission end remote to the user end;

demultiplexing the repeatedly broadcast multiplexed data signal at the user end to extract the desired data signal;

sending download mode instructions at the user end to a ~~user-selectable-designated~~ storage unit selected by the user from two or more storage units located at the user end, the download mode instructions at least indicating that the user-selected storage unit should enter a ready-to-download mode for downloading the desired data signal from the repeatedly broadcast multiplexed data signal;

receiving download status information at the user end from the user-selected storage unit indicating at least whether the user-selected storage unit has entered the ready-to-download mode; and

downloading the desired data signal at the user end to the user-selected storage unit as a function of the download status information.

87. (previously presented) The method of claim 86, wherein the downloading of the desired data signal to the storage unit is performed such that the storage unit independently controls start and stop conditions for downloading.

88. (previously presented) The method of claim 87, wherein the storage unit independently controls the start and stop conditions by monitoring data start and data stop indicators within the desired data signal.

89. (previously presented) The method of claim 88, wherein the desired data signal is in an ATRAC compressed format.

90. (previously presented) The method of claim 86, further comprising providing a wait instruction to the storage unit which indicates that the storage unit should wait until a scheduled time is reached to download the desired data signal.

91. (previously presented) The method of claim 86, further comprising providing a setup instruction to the storage unit which indicates that the storage unit should transmit download status changes to the status determination unit during the downloading of the desired data signal.

92. (previously presented) The method of claim 86, further comprising:

requesting the downloading status information from the storage unit;

computing downloading completion information from the downloading status information; and

outputting the downloading completion information to a display unit.

93. (previously presented) The method of claim 92, wherein the request for the downloading status information is performed on a periodic basis.

94. (previously presented) The method of claim 92, wherein the downloading status information includes time data, the method further comprising comparing the time data with a total time value contained within the desired data signal to obtain the downloading completion information.

95. (previously presented) The method of claim 94, wherein the downloading completion information represents at least one of: (i) a numerical percentage of downloading completion; and (ii) elapsed time in downloading.

96. (previously presented) The method of claim 86, further comprising:

receiving an error signal from the storage unit indicating that at least one of a packet continuity error, a transport error, a checksum error, and an operational error has occurred; and

outputting an error message to a display unit in response to the error signal.

97. (previously presented) The method of claim 96, wherein the storage unit retries the downloading of the desired data signal at a next scheduled time at which the desired data signal is available to download.

98. (previously presented) The method of claim 96, further comprising:

determining whether a download retry is possible in response to the error signal;

outputting a message to a display unit indicating that downloading cannot be accomplished when a download retry is not possible; and

outputting a download mode signal to the storage unit to terminate downloading when the download retry is not possible.

99. (previously presented) The method of claim 86, wherein the storage unit records management data concerning the downloaded desired data signal when downloading is complete.

100. (previously presented) The method of claim 99, wherein the management data includes at least one of U-TOC data, AUX-TOC data, and AUX data obtained from the desired data signal.

101. (previously presented) The method of claim 86, wherein the storage unit provides download readiness information, the download readiness information including at least one of (i) whether the storage unit is powered on; (ii) whether a storage medium is loaded in the storage unit; (iii) whether the storage medium is write protected; and (iv) whether the storage medium has requisite storage capacity to store the desired data signal.

102. (previously presented) The method of claim 86, further comprising downloading the desired data signal to one or more storage units.

103. (previously presented) The method of claim 102, further comprising registering a new storage unit.

104. (previously presented) The method of claim 103, wherein said registering step includes:

requesting identification information from the new storage unit; and

storing the identification information received from the new storage unit.

105. (previously presented) The method of claim 104, further comprising (i) requesting storage unit information from the new storage unit, including at least one of storage unit type, detailed

type, and ATRAC compression capability; and (ii) storing the requested information.

106. (previously presented) The method of claim 105, wherein the storage unit type information includes at least one of an analog VCR type, a digital VCR type, a DV type, a D-VHS type, an MD recorder type, a CD recorder type, a DVD recorder type, and a hard disc drive type.

107. (previously presented) The method of claim 105, wherein the detailed type information includes at least one of an analog VCR type, an MD recorder type, and a DVD recorder type.

108. (previously presented) The method of claim 103, further comprising at least one step selected from: (i) assigning the new storage unit a name by default; and (ii) assigning the new storage unit the name in accordance with a user instruction.

109. (previously presented) The method of claim 108, further comprising prompting a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded by selecting the name of the storage unit.

110. (previously presented) The method of claim 102, further comprising prompting a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded.

111. (previously presented) The method of claim 102, further comprising registering that a storage unit has been disconnected.